

15 2610

25310

S/020/61/138/005/010/025  
B104/B205

AUTHORS: Boguslavskiy, I. A., Vitman, F. F., and Pukh, V. P.

TITLE: Increase of the strength of thin glass

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 5, 1961, 1059-1061

TEXT: Two methods have recently been proposed for improving the strength of glass: hardening and chemical etching. Hardening and subsequent etching have also been studied in detail. However, these methods are only suitable for glass having a thickness of more than 5 mm. The strength of glass 1.5-3.0 mm thick is not considerably improved by hardening in air. Etching of such glass, however, raises their average strength to 50-60 kg/cm<sup>2</sup>. These values are only slightly lower than those obtained for thick glass. The authors present the results of experiments made with glass specimens having dimensions of 80-80 mm and a thickness of 1.5, 3.0, and 5.0 mm. The specimens had non-processed and mechanically polished surfaces, and were treated a) thermochemically, b) by etching with hydrofluoric acid solution, and c) by applying both methods successively. In the first method, the specimens were placed perpendicularly in a tem-

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Increase of the strength of 2500

S/020/61/138/005/010/025  
B104/B205

pering furnace and heated to a temperature slightly above that at which the glass softens. After 2-3 min the specimens were cooled in silicone oil and air. In the second method, a layer of 0.1 mm was removed from the surface of the specimens by etching in 20% hydrofluoric acid. The third method combines the first two procedures. The results of the tests are shown in figs. 1 and 2. The combined method (thermochemical treatment followed by etching) is shown to furnish the best results. It ensures a strength of 70-80 kg/cm<sup>2</sup>. Optimum results were obtained for 1.5-mm glass whose surface had not been processed and which had a relatively high initial strength. The factors increasing the strength of glass are still unknown. It is believed that strength-reducing flaws in the surface layer are eliminated by etching or by thermochemical treatment. The rapid cooling in a liquid organo-silicon medium is likely to change the distribution of hardening strains across the thickness of the glass specimen which, in turn, gives rise to strong compressing forces in the surface layer. On the other hand, it is also necessary to take into account the effect of the hydrophobic layer which is formed on the surface of the glass specimen while being cooled in silicone oil, as well as the interaction of the strongly heated glass with the organo-silicon compounds. By

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Increase of the strength of ... 25310

S/Q20/61/138/005/010/025  
B104/B205

using liquids that allowed the glass to be cooled more rapidly, it was possible to reach a bending strength of 100-120 kg/mm<sup>2</sup> for glass of 5 mm thickness. The bending strength could be raised up to 150 kg/mm<sup>2</sup> by reducing the thickness of the glass. There are 2 figures and 8 Soviet-bloc references.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Institute of Physics and Technology imeni A. F. Ioffe of the Academy of Sciences USSR); Gosudarstvennoye spetsial'noye proyektno-konstruktorskoye byuro po steklu (State Special Planning and Design Office for Glass)

PRESENTED: February 13, 1961, by B. P. Konstantinov, Academician

SUBMITTED: January 24, 1961

Card 3/5

BOGUSLAVSKIY, I.A.; VITMAN, F.F.; PUKH, V.R.

Raising the strength of thin glass. Dokl. AN SSSR 138 no. 5:1062-1065  
Je '61. (MIRA 14:6)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR i  
Gosudarstvennoye spetsial'noye proyektno-konstruktorskoye byuro po  
steklu. Predstavleno akademikom B.P.Konstantinovym.  
(Glass manufacture) (Strength of materials)

39974

S/181/62/004/008/018/041  
B125/B102

152120

AUTHORS: Vitman, F. F., Boguslavskiy, I. A., and Pukh, V. P.

TITLE: Glass hardening

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2160-2168

TEXT: Glasses were tested after being hardened in the following ways: (1) by quenching in polysiloxane liquids and in mineral oils; (2) by etching in hydrofluoric solutions, and (3) by quenching with subsequent etching. In each case the specimens were of vertically drawn glass, measuring 80 mm square and of 1.5, 3.0, and 5.0 mm thickness, with both natural and mechanically polished surfaces. The strength of the glass plates 1.5 to 3.0 mm thick was found to be only slightly increased by quenching in air blasts. The strength of those 5 to 6 mm thick can be increased, by quenching in organosilicon oils or in mineral oils, from 10-20 kg/mm<sup>2</sup> up to 30-80 kg/mm<sup>2</sup>. By subsequent etching in hydrofluoric solutions it can be to 60 to 125 kg/mm<sup>2</sup>. By this method of hardening the strength of the glass plates 1.5-3.0 mm thick could be increased to the unprecedented level of 50 kg/mm<sup>2</sup>. Glass hardening by quenching in air

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Glass hardening

S/181/62/004/008/018/041  
B125/B102

blasts and liquids is due to compressive stresses generated in the surface and largely to physical changes produced in the surface layer of the glass. The contribution of these physical changes to hardening is the greater the more rapidly the glass is cooled. This two-stage hardening process is well suited for the commercial production of large glasses and for various engineering purposes. There are 3 figures and 1 table. f

ASSOCIATION: Fiziko-tehnicheskii institut im. A. F. Ioffe AN SSSR,  
Leningrad (Physicotechnical Institute imeni A. F. Ioffe,  
AS USSR, Leningrad)

SUBMITTED: March 22, 1962

Card 2/2

S/020/62/145/001/012/018  
B104/B102

AUTHORS: Vitman, F. F., Boguslavskiy, I. A., and Pukh, V. P.

TITLE: Glass hardening

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 1, 1962, 85-88

TEXT: Glass hardness of up to  $100 \text{ kg/mm}^2$  can be achieved by quenching the glass in liquids or air and then etching it. The authors discuss papers from the years 1933 through 1961 which deal with glass hardening methods. They conclude that in glass hardening great significance attaches not only to the hardening stresses but also to the structural state of the glass surface. There is 1 table.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR). Gosudarstvennoye spetsial'noye proyektno-konstruktorskoye byuro po steklu VSNKh RSFSR (State Special Planning and Designing Bureau of Glass VSNKh RSFSR)

Card 1/2

Glass hardening

S/020/62/145/001/012/018  
B104/B102

PRESENTED: January 20, 1962, by B. P. Konstantinov, Academician

SUBMITTED: January 3, 1962

Card 2/2



BOGUSLAVSKIY, I. A.

Dissertation defended for the degree of Candidate of Technical Sciences at the Technical Physics Institute imeni A. F. Ioffe in 1962:

"Several Investigations on the Problem of Producing High-Strength Glass."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

ACCESSION NR: AP4043404

S/0072/64/000/008/0006/0009

AUTHOR: Boguslavskiy, I.A. (Candidate of technical sciences); Khalizeva, O. N. (Engineer); Pukhlik, O. I. (Engineer)

TITLE: Investigation of strength and heat resistance of reinforced glasses

SOURCE: Staklo i keramika, no. 8, 1964, 6-9

TOPIC TAGS: reinforced glass, viscous tempering, etching, heat resistant glass, thermo-physical method

ABSTRACT: In this paper are given the results of an investigation of the relation between the strength of glasses and their thickness. The glasses used for testing were of a thickness from 3 to 25 mm. The tested glasses were reinforced by two methods: viscous tempering and a thermo-physical method (viscous tempering plus etching). The strength of the glasses was evaluated by the method of central flexure taking into consideration necessary requirements toward the Poisson diameter and support, magnitude of sagging and the dimensions of the tested glass plate. Based on the experimental data the authors raise a question in regard to substituting defective glasses of a heat resistant content with reinforced glasses of a standard content. In conclusion, the authors claim that it is possible to increase the exploitation temperature of reinforced glasses by using compounds in which

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ACCESSION NR: AP4043404

relaxation begins at a higher temperature, and which do not contain expensive and deficient components. In many cases such glasses will be competitive with quartz glasses. Orig. art. has: 2 tables and 4 figures

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 005

OTHER: 001

Card 2/2

ACCESSION NR: AP4041407

S/0020/64/156/006/1424/1427

AUTHOR: Boguslavskiy, I. A.; Pukhlik, O. I.

TITLE: Development and investigation of ultrahigh-strength glasses

SOURCE: AN SSSR. Doklady\*, v. 156, no. 6, 1964, 1424-1427

TOPIC TAGS: silicate glass, heat resistant glass, glass heat treatment, glass quench tempering, glass leaching, glass surface hardening, ultrahigh strength glass

ABSTRACT: A new thermophysical method recently developed for common calcium-sodium silicate glass has been applied to several commercial heat-resistant glasses [composition unspecified] to obtain ultrahigh-strength glasses with a low coefficient of thermal expansion. The method is a combination of quench-tempering in a liquid [unspecified] medium with subsequent leaching with hydrofluoric acid. Bending strength and surface hardening greater than that found in common glass were achieved in silicate glasses of various chemical composition by selecting an appropriate quenching medium for each glass composition.

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ACCESSION NR: AP4041407

Experimental data showed that structural, and to a lesser degree, mechanical factors contribute to the overall surface hardening resulting from quench-tempering of glass. The dependence of the increase in compressive stress and surface hardening on the degree of cohesion of the silicon-oxygen skeleton is shown. A further study is expected to establish the heat-treatment conditions necessary for obtaining maximum strength in glasses of a given composition. Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 28Feb64 /

ENCL: 00

SUB CODE: MT

NO REF SOV: 013

OTHER: 000

Card 2/2

ACCESSION NR: AP4042020

S/0020/64/157/001/0087/0090

AUTHORS: Boguslavskiy, I. A.; Vitman, F. F.; Pukhlik, O. N.

TITLE: Increase of quenching stresses in glass for additional strengthening

SOURCE: AN SSSR. Doklady\*, v. 157, no. 1, 1964, 87-90

TOPIC TAGS: glass processing, glass annealing, heat treatment, strengthening, prestraining

ABSTRACT: A direct measurement was made of residual stresses in glasses with a wide range of thickness, quenched at different cooling rates, in order to compare the resultant data with the theory in the range of Biot numbers hitherto uninvestigated ( $Bi > 5$ ). This research was set up as a check on the hitherto prevalent opinion that quenching stresses cannot contribute much to further strengthening of glass. Glass plates 160 mm square and 5--25 mm thick were

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ACCESSION NR: AP4042020

quenched in two liquids having different cooling abilities. The fact that 25 mm plates quenched in liquid could lead to heretofore unattainable compression stresses on the order of  $50 \text{ kg/mm}^2$  (double what can be accomplished with intense air quenching) indicates that the possibility of increasing quenching stresses have not yet been exhausted. The seeming discrepancy between the intense growth of compression stress and simultaneous strong attenuation of the tensile stresses is explained. Comparison of the experimental data with several theories of glass quenching shows that the theoretical calculations of V. L. Indenbom (Collection: Fizika tverdogo tela, 1, Izd. AN SSSR, 1959, page 236) are in better agreement with the test results than those of G. M. Bartenev (Mekhanicheskiye svoystva i teplovaya obrabotka stekla, 1960). The final conclusion is that one of the promising ways of strengthening thick glass still lies in the possibility of increasing the Biot number during their quenching and in the appropriate development of suitable quenching media. Orig. art. has: 3 figures.

Card 2/52

BOGUSLAVSKIY, I.A., inzh.; PUKHLIK, O.I., inzh.

Study of strengthening strains in hardened glass made of  
heat-resistant compositions. Stek. i ker. 20 no.9:1-5 S'63.  
(MIRA 17:6)



L 12002-65

EWI(m)/ENP(s)/ENP(s)

Pg 4

ESD(gs)

WPI

ACCESSION NR: AP4047002

S/0072/64/000/010/0004/0009

AUTHOR: Boguslavskiy, I. A. (Candidate of technical sciences)

TITLE: Nature of ultra-high strength in glasses hardened by the thermophysical method

SOURCE: Steklo i keramika, no. 10, 1964, 4-9

TOPIC TAGS: silicate glass, common glass, heat resistant glass, ultra-high strength glass, glass heat treatment, glass surface hardening, glass strengthening mechanism

ABSTRACT: Results of previous investigations have been reviewed, and the contribution of mechanical and structural factors to the thermophysical hardening of glasses of various thickness and composition has been studied and discussed. The study was initiated by Professor F. F. Vitman for the purpose of establishing a scientific base for a further increase in the strength of various glasses by the recently developed thermophysical method. Compressive strength measurements by the N. N. Davidenkov method (F. F. Davidenkov, N. N. Dmitriyeva, V. P. Fikh. Fizika tverdogo tela, 1961, v. 4, no. 3)

Card 1/3

L 12003-65

ACCESSION NR: AP4047002

made it possible to plot the thickness dependence of  $\sigma_c$  for common silicate glasses, and the composition or cooling-rate (heat-transfer coefficient) dependence of compressive stress, i.e., the mechanical factor for various toughened glasses. The possibility of obtaining heat-resistant glasses with even higher compressive stress by selecting appropriate quenching agents was deduced from these data. The contribution of the structural factor to the total hardening effect was evaluated by subtracting  $\sigma_c$  from the total  $\sigma_{\text{hard}} + \sigma_{\text{leach}}$  (leach). The plots of  $\sigma_c$ ,  $\sigma_{\text{structural}}$ , and  $\sigma_{\text{leach}}$  versus the thickness of various toughened glasses indicated that in the hardening of thin calcium-sodium silicate glasses and BB, 13B, 31, and 44-3 glasses resistant glasses, the structural factor is predominant. The hardening of thick common glasses the basic factor is leaching. Therefore, high-strength glasses of various chemical compositions can be obtained. Theories on the nature of the structural factor, the strength and on the mechanism of glass hardening were tested experimentally. The linear dependence of the structural factor on the average number of cross-links was demonstrated, i.e., on the degree of cohesion of the silicon-oxygen skeleton, demonstrated the effect of the modifiers, and hence, the existence of an

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L 12008-65

ACCESSION NR: AP4047002

elastic deformation mechanism of glass-surface hardening. The comparison of resonance characteristics of the starting and rapidly quenched heat-resistant glasses with different SiO<sub>2</sub> content. The relaxation nature of glass hardening due to the ... Orig. art. has: 5 figures and 2 tables.

ASSOCIATION: none

SUBMITTED: 00

ATD PRESS: 3122

SUB CODE: MT

NO REF SOL: 013

OTHER: 003

Card 3/3

BOGUSLAVSKIY, I.A.; PUKHLIK, O.I.

Devising the methods of research on superstrong glasses.  
Dokl. AN SSSR 156 no.6:1424-1427 Je '64. (MIRA 17:8)

1. Predstavleno akademikom N.N. Semenovym.

BOGUSLAVSKIY, I.A.; VITMAN, F.F.; PUKHLIK, O.I.

Intensifying the quenching stresses in glass for the purpose  
of further hardening. Dokl. AN SSSR 157 no.1:87-90 J1 '64  
(MIRA 17:8)

1. Predstavleno akademikom N.N. Semenovym.

BOGUSLAVSKIY, I.A., kand.tekhn.nauk

Investigating the nature of extra-strong glass hardened by  
thermophysical methods. Stek. i ker. 21 no.10:4-9 0 '64.  
(MIRA 18:11)

L 5310-66 EWP(e)/EWT(m)/EWP(1) WH

ACC NR: AP5025714

SOURCE CODE: UR/0286/65/000/018/0070/0070

AUTHORS: Boguslavskiy, I. A.<sup>44</sup> Vitman, F. F.<sup>44</sup> Pukh, V. P.<sup>44</sup>

24  
B

ORG: none

<sup>15.44</sup>  
TITLE: A method for strengthening glass and glass products. Class 32, No. 174776<sup>15</sup>

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 70

TOPIC TAGS: glass, glass product

ABSTRACT: This Author Certificate presents a method for strengthening glass and glass products by quenching them from the temperatures near the temperature of softening with the help of cooling substances. To prevent strength-lowering structural and physical alterations in glass during its hardening, glass is quenched with substances of the greatest cooling capacity exactly in the anomalous range of glass hardening temperatures.

SUB CODE: MT/

SUBM DATE: 11Nov60/

ORIG REF: 000/

OTH REF: 000

OC  
Card 1/1

090/0611

L 13616-66 E.T(d)/FSS-2/EEC(k)-2 IJP(c) AST/JT/BC

ACC NR: AP6011287

SOURCE CODE: UR/0378/66/000/001/0052/0064

AUTHOR: Boguslavskiy, I. A.

66

B

ORG: none

TITLE: Statistically optimal pulse corrections in space flight

SOURCE: Kibernetika, no. 1, 1966, 52-64

TOPIC TAGS: optimal control theory, stochastic process, spacecraft control

ABSTRACT: Methods are studied for the selection of statistically optimal pulses for correcting the speed of space vehicles. The sampling method for optimal corrections (the optimal strategy) is defined as a chain of  $N^{+1}$  successive statistical decisions which take into account the statistical characteristics of random factors to allow an accuracy after the last pulse given by the expression

$$\text{Prob } (d_0^+ \in \Omega) > P_0,$$

where  $P_0$  is a given number near 1, and to minimize the quantity  $V_N(\alpha)$  defined by the relation

$$\text{Prob } (W_N < V_N(\alpha)) = \alpha,$$

UDC: 519.8:629.19

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L 42646-66

ACC NR: AP6011287

0

where  $\alpha$  is a given number near 1. A study is made of the more specific problem of finding methods for choosing optimal pulses in order to minimize  $V_N(\alpha)$  under the condition that only the choice of the last pulse is responsible for the accuracy of correction. Orig. art. has: 68 formulas, 1 figure.

SUB CODE: 22,13,12/ SUBM DATE: 01Mar65/ ORIG REF: 001/ OTH REF: 002

LS

Card 2/2

L 22988-66 EWT(d)/FBD/FSS-2/EWT(1)/EWP(m)/EEC(k)-2/EWA(d) IJP(c) AST/JKT/GW/BC  
ACC NR: AP6012826 SOURCE CODE: UR/0293/66/004/002/0203/0207

AUTHOR: Boguslavskiy, I. A.; Ivashchenko, O. I.; Shepelev, Yu. G. 104  
B

ORG: none

TITLE: On control of a space ship<sup>9</sup> with low-thrust engines in acceleration  
with no information on the current velocity vector

SOURCE: Kosmicheskiye issledovaniya, v. 4, no. 2, 1966, 203-207

TOPIC TAGS: astronautics, celestial mechanics, artificial satellite orbit, orbit  
control, orbit program, satellite control, thrust vector control 12

ABSTRACT: A possible method of control of a space ship with low-thrust engines  
in the acceleration phase is described when no information on the velocity vector  
is available. This method consists in the realization of 1) a system which can  
determine the real angles of thrust-vector orientation with respect to a planeto-  
centric coordinate system, and 2) a vertical reference which provides the orien-  
tation of the planetocentric radius-vector of the space ship in the same coordinate  
system at any time. Thus, it is possible to stabilize the plane of an osculating  
orbit with respect, for example, to a planetocentric coordinate system in a  
position given by the latitude of the ascending node  $\Omega$  and the inclination of the  
orbit  $i$  in the sense that it diminishes the discrepancy between the real  $\Omega$  and  $i$

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UDC 629.191

L 22988-66

ACC NR: AP6012826

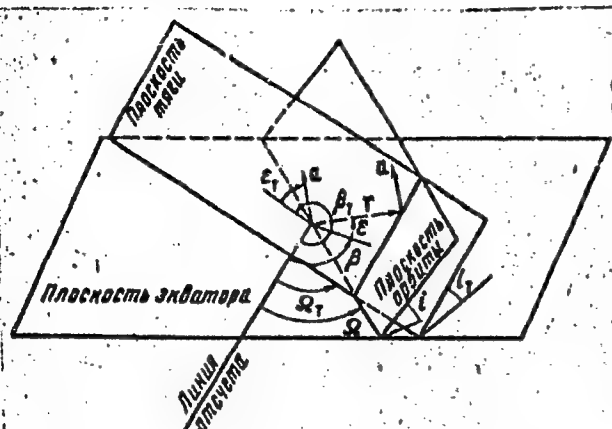


Fig. 1. Coordinate system

and given values  $\Omega$  and  $\epsilon$  (see fig. 1.). The properties of the space ship control described here are analyzed and it follows that transverse orientation of the thrust vector is present if the thrust plane coincides with the plane of osculating orbit. Transverse orientation of the thrust vector in acceleration as it is known from V. V. Beletskiy and V. A. Yegorov (Kosmicheskiye issledovaniya, v 2, no. 3, 1964) leads to an expenditure of energy not different from that with tangential orientation. It is

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L 22988-66

ACC NR:

AP6012826

0

shown that the selected control law makes it possible to stabilize the orbit in space with  $\Omega_r$  and  $i_r$  constant. Moreover, when the planetary gravity field differs from the central field,  $\Omega_r$  and  $i_r$  should be certain functions of time in order to make more effective use of energy. Indeed, the expenditure of energy would be used effectively if the total thrust is used for augmentation of the radius vector of the space ship, which is realized when the thrust vector is situated in the plane of an osculating orbit. An expression for the time dependence of  $\Omega_r$  is derived, assuming that  $i_r$  is constant. Thus, if the function  $\Omega_r(t)$  is given with sufficient accuracy by the programmer of the control system and  $\Omega_r$  and  $i_r$  are sufficiently close to values of  $\Omega$  and  $i$  at the start of acceleration, the orientation of the thrust vector during acceleration will practically coincide with transverse orientation and the energy expenditures of the space ship in escaping from the earth's influence will practically coincide in both three-dimensional and plane cases. The possibility and difficulty of realizing purely programmed control are discussed. Orig. art. has: 1 figure and 14 formulas. [AB]

SUB CODE: 22/ SUBM DATE: 23Apr64/ ORIG REF: 003/ ATD PRESS: 4238

Card 3/3 *LC*

L 06550-67 EEC(k)-2/EWP(k)/EWP(h)/EWT(d)/EWP(1)/FSS-2/EWP(v) IJP(c)

ACC NR: AP6016131

SOURCE CODE: UR/0103/66/000/005/0015/0027

AUTHOR: Boguslavskiy, I. A. (Moscow)

ORG: none

TITLE: Statistically optimal control<sup>14</sup> of the finite state

SOURCE: Avtomatika i telemekhanika, no. 5, 1966, 15-27

TOPIC TAGS: optimal control, missile control, rocket guidance

ABSTRACT: A generalized dynamic system with a given discrete inflow of information is considered. The information is measured with errors for the given linear object of the  $n$ -th order; there are also certain control restrictions. Generalized recurrence formulas are developed and used to plot an optimum expectation vector such that minimizes the *a posteriori* mathematical expectation of some function of  $\mu \leq n$  finite phase coordinates of the object. In most problems considered  $\mu = 1$ . For a continuous inflow of information, an appropriate Bellman equation was developed. For one-dimensional control ( $\mu = 1$ ) and asymmetry restriction, an explicit solution has been obtained. Recurrence formulas have also been developed for cases when the synthesis of optimum control must be performed with a consideration of the actually available value of the functional of "energy consumption" by the control systems. Some of the specific problems considered include the synthesis of optimum rocket engine control, calculation and

UDC: 62-505.5

Card 1/2

L 06550-67

ACC NR: AP6016131

measurement of feedback vectors, and the synthesis of the homing guidance system of a rocket. Orig. art. has: 37 formulas. 9

SUB CODE: 13,12/

SUBM DATE: 21Jun65/

ORIG REF: 008/

OTH REF: 001

Card 2/2 *MLE*

SOV/136-58-6-8/21

AUTHORS: Feygin, V.I. and Zhiryakov, N.I., Boguslavskiy, I.M.

TITLE: Automation of Rolling Mills in Non-ferrous Metallurgy  
(Avtomatizatsiya prokatnykh stanov v tsvetnoy metallurgii)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 6, pp 42 - 52 (USSR)

ABSTRACT: This article deals mainly with work done by the KB Tsvetmetavtomatika on the automation of the three-high, hot-rolling mill at the imeni S. Ordzhonikidze Works and of the reversing cold strip mill at the Kirovskiy zavod (Kirov Works). The work on the first was carried out with the participation of B.S. Fradkin, V.S. Morozov and A.A. Vasil'yeva. This mill rolls mainly billets of type L-62 (115 x 800 x 600 mm) and L-90 (100 x 800 x 350 mm) brass into coiled strip (4.0 - 6.0 mm thick) or sheet (15 mm thick), generally in nine passes. The first stage of automation embraces all the operations, previously carried out by the operator, all the roller tables, the tilting lifts, the middle-roll moving mechanism and the screw-down to a programme, synchronization of the roller speeds with that of the rolled strip to avoid surface damage. The operator now merely selects the appropriate programme and looks after the mechanisms; the arrangement (Figure 3)

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Automation of Rolling Mills in non-ferrous Metallurgy

does provide for immediate manual take-over. The authors describe the system in detail and state that experience has shown that the automation had led to some process advantages and a 2% increase in rolling rate; the power of the motor preventing further improvements; almost all occasions of manual take-over were due to outside factors; the scatter in the thickness of the product was 35% less than with manual control. The automation of cold-rolling mills was started at the end of 1956. With the participation of B.M. Avdeyev and S.I. Alimov, the 250 four-high mill for cold-rolling brass from 1 to 0.4 mm at rolling speeds up to 3.5 m/sec has been automated, some original (Ref 4) proposals as well as some made by the TsKB "Elektroprivod" (Ref 5) and TsNIITMash (Ref 6) being used. For the continuous measurement of metal pressure on the rolls, a strip strain gauge (Figure 4) is used, provision being made for calibration directly in the mill, according to a proposal by Ye.S. Rokotyan and I.M. Meyerovich of TsKBMM of TsNIITMash. When the pointer on the indicating instrument reaches the maximal desired value of the pressure, it operates a photo-relay to produce the appropriate change

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SOV/136-58-6-8/21

Automation of Rolling Mills in non-ferrous Metallurgy

at the stand. For the continuous thickness control of the strip, the system adopted (Figure 5) is based on two radioactive isotope devices, one before and the other after the mill. An integrating device (Figure 6) is included in the system to ensure that only sufficiently important changes in thickness operate the control system. For stopping the rolls just before the end of the strip reaches them, a system (Figure 7) based on counters of the number of turns of strip on the coilers is used; for thicker strip (0.7 mm and over) the metal is allowed to leave the coilers but not the rolls, the control being effected with the aid of a small, type FR-236 photo-relay (Figure 8). In 1957, the KB TsMA studied the indirect measurement of roll temperature from that of a small volume of air in contact with the rolls. Model tests have shown an error of  $\pm 3^{\circ}\text{C}$  for an ambient temperature of  $20 \pm 5^{\circ}\text{C}$ .

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Automation of Rolling Mills in Non-ferrous Metallurgy SOV/136-58-6-8/21

. There are 8 figures and 6 Soviet references.

ASSOCIATION: KB Tsvetmetavtomatika

Card 4/4

<sup>5</sup>  
(BOGULAVSKIY, I.M.; ZHIRYAKOV, N.I.; FEYGIN, V.I.

Automation of a reversing mill for cold rolling of nonferrous  
metals. Sbor.mat.po avtom.proizv.prots.i disp. no.5:72-93 '60.  
(MIRA 14:4)

1. Konstruktorskoye byuro "TSvetmetavtomatika."  
(Rolling mills) (Automation)

BOGUSLAVSKIY, I.M.; BROYDO, B.S.; KHUCHER, G.N.; TARSHINOV, V.I.

Complete investigation of a three-high continuous mill for the  
cold rolling of copper alloy strip. TSvet. met 33 no. 12:66-74  
D '60. (MIRA 13:12)  
(Rolling mills--Testing) (Copper alloys)

S/118/61/000/005/004/006  
D203/D306

AUTHORS: Boguslavskiy, I.M. and Petrova, I.V, Engineers

TITLE: A system for continuously measuring the tension of a band undergoing rolling

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, no. 5, 1961, 34-35

TEXT: The Konstruktorskoye byuro (Design Office) of "Tsvetmetavtomatika" together with the Research Section of the Kirovskiy zavod (Kirov Plant) for machining non-ferrous metals have designed diaphragm gauges for measuring the tension of a band undergoing rolling. The tension of the band and the pressure on the supporting roller are connected by the relationship

$$T = \frac{P}{\sin\beta_1 + \sin\beta_2}, \text{ where } T = \text{band}$$

tension  $P$  = pressure of the band on the measuring roller,  $\beta_1, \beta_2$  = angles of the band with the horizontal. The gauge is fitted under both

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S/118/61/000/005/004/006  
D203/D306

A system for continuously...

bearings of the supporting roller so that the tension on the roller is the sum of two pressures and is independent of the band motion along the roller. The construction of the gauge is illustrated as well as the circuit diagram of the system. Electrical pressures from the bridges are added and transmitted to the pointer of the  $\gamma/\eta$  (UP) apparatus of the  $M\eta\omega/\eta p$  (MPShChPr) type calibrated in tons. For automatic control a high resistance amplifier should be connected in parallel to the indicating instrument. Practical experience with this apparatus in the Kirov Plant gives grounds for recommending it in controlling a band undergoing rolling. There are 3 figures. ✓

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25049

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B124/B206

52420

AUTHORS: Boguslavskiy, I. M., Vol'fkovich, S. I., Kazakova, S. B.,  
~~Bogdanova, N. S.~~

TITLE: Production of hydrogen fluoride from silicon tetrafluoride

PERIODICAL: Khimicheskaya promyshlennost', no. 7, 1961, 6 - 8

TEXT: During the production of superphosphate fertilizers by decomposition of apatite and phosphorites with sulfuric acid, about 45% of the fluorine present in the ore escapes in the form of  $\text{SiF}_4$ , together with the waste gases. HF can be produced from  $\text{SiF}_4$  by the process studied and proposed in this paper, without great capital investment for the raw material production. Production cost of HF is also greatly reduced due to complete utilization of  $\text{SiF}_4$  for the production of HF and high-quality  $\text{SiO}_2$ . The process consists of two main stages: production of solid ammonium fluoride and -bifluoride from  $\text{SiF}_4$ -containing gases and decomposition of ammonium fluoride and -bifluoride by means of sulfuric acid, by which HF and  $(\text{NH}_4)_2\text{SO}_4$  are obtained. The main reactions of the first stage are:

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X

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Production of hydrogen...

$\text{SiF}_4 + 2\text{NH}_4\text{F} = (\text{NH}_4)_2\text{SiF}_6$  (1);  $(\text{NH}_4)_2\text{SiF}_6 + 4\text{NH}_3 + 2\text{H}_2\text{O} = 6\text{NH}_4\text{F} + \text{SiO}_2$  (2);  $2\text{NH}_4\text{F} \longrightarrow \text{NH}_4\text{F} \cdot \text{HF} + \text{NH}_3$  (3).  $\text{SiF}_4$  is absorbed by a recycled  $\text{NH}_4\text{F}$  solution; reaction (1) takes place in the absorption apparatus. The  $(\text{NH}_4)_2\text{SiF}_6$  solution obtained is led from the absorption apparatus for neutralization with ammonia, which is carried out under continuous cooling of the  $\text{NH}_4\text{F}$  solution formed. The precipitated  $\text{SiO}_2$  is filtered off and rinsed with water. The greater part of the mother liquor is led to the evaporator, and the rest in the form of a 10-12% solution to the absorption of  $\text{SiF}_4$ . The  $\text{NH}_4\text{F}$  solution is evaporated to a salt concentration of 94-95%, reaction (3) taking place. The ratio between ammonium fluoride and -bifluoride in the evaporated solution depends on the boiling point of the solution. Table 1 shows data on the evaporation of  $\text{NH}_4\text{F}$  at various temperatures and pressures; practically no fluorine is present in the condensate at  $147^\circ\text{C}$ , and the sum of the salts in the solution reaches 98% in this case. The solution solidifies at about  $100^\circ\text{C}$ . The solid  $\text{NH}_4\text{F} \cdot \text{HF}$  -  $\text{NH}_4\text{F}$  salt mixture with a total fluorine content of 60% represents an

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Production of hydrogen...

intermediate product in the production of HF. The second stage of the process can be characterized by the reactions:  $\text{NH}_4\text{F} \cdot \text{HF} + \text{H}_2\text{SO}_4 = \text{NH}_4\text{HSO}_4 + 2\text{HF}$  (4);  $\text{NH}_4\text{F} + \text{H}_2\text{SO}_4 = \text{NH}_4\text{HSO}_4 + \text{HF}$  (5) and  $\text{NH}_4\text{HSO}_4 + \text{NH}_3 = (\text{NH}_4)_2\text{SO}_4$  (6). 93-95% sulfuric acid is used for the decomposition of the salt mixture consisting of 80% ammonium bifluoride and 20% ammonium fluoride; decomposition is carried out at 180-190°C. Table 2 shows the experimental results for the decomposition of  $\text{NH}_4\text{F}$  with sulfuric acid in a steel-boat, which was placed in an electric tubular furnace with a constant stream of dry air; the experiments were conducted with temperatures maintained constant to within  $\pm 30$ . The heating time varied from 5 to 30 min. The HF evolved was absorbed by water in vessels made from organic glass, the melt was weighed, analyzed for residual fluorine, and the fluorine yield was calculated. With 30 min reaction time and 180-190°C, the fluorine yield amounts to 97-98%. The ammonium bisulfate melt obtained contains about 40% free sulfuric acid. Neutralization of the latter with the calculated amount of ammonia converts the ammonium bisulfate into ammonium sulfate. Fig. 4 shows the decomposition curve of ammonium fluoride and -bifluoride with sulfuric acid as a function of its concentration, calculated for ammonium bisulfate (decomposition time 40 min at 195°C). On the basis of Card 3/6

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## Production of hydrogen...

laboratory results, the pilot plant of the NIUIF under the direction of V. D. Podkopayev, designed a pilot installation for the production of HF by decomposition of ammonium fluoride and -bifluoride with sulfuric acid, which yielded good results. In order to select the most corrosion-resistant material for the thickener and reactor, the steel types investigated were immersed in anaqueous solution with 26%  $\text{NH}_4\text{F}$  and 19%  $\text{NH}_4\text{F}\cdot\text{HF}$ ; the specimens were in a vessel made from **ATM-1** (ATM-1) graphite, with an external heating coil. The solution was periodically heated for 7 hr daily, the specimens being held for 120 hr at 80°C and 880 hr at room temperature. Steel of the type **X23H28M3A3T** (Kh23N28M3D3T) was most corrosion-resistant. Moreover, the most resistant material was ascertained in a molten mixture of  $\text{H}_2\text{SO}_4$ ,  $\text{NH}_4\text{F}$ , and  $\text{NH}_4\text{F}\cdot\text{HF}$  at 190-200°C, the specimen being fixed to the bottom of the vessel by a Teflon strip and the melt being mixed by a mechanical mixer. The test lasted 92 hr with a continuous feed of the mixture, and showed that steels of the type **X23H23M3A3** (Kh23N23M3D3) and **OX23H28M3A3T** (OKh23N28M3D3T) are the most resistant. Data obtained for **CT-0** (St-0) steel (loss in weight 43.0 g/m<sup>2</sup>·hr) need a checkup under working conditions. There are 4 figures and 2 tables.

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ASSOCIATION: NIUIF

Table 1: Evaporation of ammonium fluoride solutions at various temperatures and pressures.

Legend: 1) pressure, mm Hg; 2) temperature, °C; 3) composition of the evaporated solution, %; 4) sum of the salts.

| Давление<br>мм рт. ст.<br>1) | Температура<br>°C<br>2) | 3) Состав упаренного раствора, % |                 |                | NH <sub>4</sub><br>P |
|------------------------------|-------------------------|----------------------------------|-----------------|----------------|----------------------|
|                              |                         | P                                | NH <sub>3</sub> | сумма<br>солей |                      |
| 760                          | 126                     | 40,65                            | 27,69           | 70,49          | 0,681                |
| 760                          | 146                     | 57,14                            | 30,89           | 91,99          | 0,542                |
| 760                          | 151                     | 49,55                            | 31,30           | 93,98          | 0,525                |
| 560                          | 113                     | 38,53                            | 25,13           | 62,54          | 0,707                |
| 560                          | 115                     | 38,06                            | 26,69           | 64,75          | 0,703                |
| 460                          | 109                     | 36,79                            | 26,54           | 65,61          | 0,722                |
| 460                          | 123                     | 50,47                            | 29,79           | 82,91          | 0,590                |
| 460                          | 130                     | 54,70                            | 30,86           | 88,43          | 0,560                |
| 460                          | 142                     | 59,50                            | 32,63           | 95,25          | 0,549                |
| 460                          | 147                     | 62,33                            | 32,61           | 98,21          | 0,523                |

Card 5/6

Tab 1

BOGUSLAVSKIY, I.M., inzh.; PETROVA, I.V.

Equipment for continuous measurement of the tension of a strip during rolling. Mekh. i avtom. proizv. 15 no. 5:34-35 My '61.

(Rolling (Metalwork)) (Electric measurements) (MIRA 14:5)

L 12492-63

BDS

S/118/63/000/004/002/003

AUTHOR: Boguslavskiy, I. M.; Broydo, B. S.

48

TITLE: Automatic tension control between stands of a cold-rolling mill

PERIODICAL: Mekhanizatsiya i avtomatizatsiya proizvodstva, <sup>17</sup>no. 4, 1963, 42-43

TEXT: The design bureau of the "Tsvetmetavtomatika" has developed a tension control device for connection between the first and second stands of the three-stand type "1000" rolling mill. Tension is measured with the aid of a three roller pickup mounted in the space between the stands. The mechanical and electrical diagrams are given. With the tension device disconnected, the average tension varies from 4.6 to 8 tons (circa 42%), whereas with the device in operation, the variation in tension under identical conditions is reduced to 15%. This relieves the mill operator of the need for checking and regulating the tension. The device is recommended for use in other continuous cold-rolling mills. The article has 2 figures.

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[illegible]

| 131 AND 139 SERIAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |  | PROCESSING AND PROPERTIES INDEX                                                                                                                                                                                                                         |  |  |  |  |  |  |  |  |  | 140 AND 141 SERIAL                                                                          |  |  |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|---------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <div style="position: absolute; top: 10px; left: 10px; font-size: 2em; font-weight: bold;">BC</div> <div style="position: absolute; top: 10px; right: 10px; font-size: 1.5em; font-weight: bold;">B-E-8</div> <div style="position: absolute; top: 100px; left: 100px; width: 80%; height: 600px; border: 1px solid black; padding: 10px;"> <p>Preparation of sodium hydroxide and sulphuric acid from mirabilite. I. M. Bontsalov, S. V. Bontsalov, and V. E. Bontsalov (J. Chem. Ind. Russ. 1958 12 (1957-1958).—Na<sub>2</sub>SO<sub>4</sub> is reduced with O to Na<sub>2</sub>S, an aq. solution of which is treated with a 20% excess of CuO (95°; 25 min.) to yield NaOH 30, Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> (I) 3.4, and Na<sub>2</sub>CO<sub>3</sub> (II) 7.2%; the content of (I) rises to 7 and of (II) to 12% of the total Na salts during causticization. The % causticization is the same for 1-8N-Na<sub>2</sub>S, but the rate of sedimentation of CuS is greatly retarded in concn. &gt;7N. The washed ppt. contains H<sub>2</sub>O 14 and NaOH 0.35%. 84% of the (I) undergoes decomp. during concn. at 100° of the NaOH solution, to yield Na<sub>2</sub>SO<sub>4</sub> and Na<sub>2</sub>S, and the latter is oxidized to insol. Na<sub>2</sub>SO<sub>4</sub> during fusion of NaOH. The final product contains 0.5% of (I). The CuS is heated at 800° in a stream of air, yielding a mixture of SO<sub>2</sub> and SO<sub>3</sub>, and regenerating CuO. The loss of Cu involved in the prep. of 1 ton of NaOH and 1.2 tons of H<sub>2</sub>SO<sub>4</sub> is 10-15 kg. R. T.</p> </div> |  |  |  |  |  |  |  |  |  | <div style="position: absolute; top: 10px; left: 10px; transform: rotate(-90deg); font-size: 0.8em;">COMMON ELEMENTS</div> <div style="position: absolute; top: 10px; right: 10px; transform: rotate(-90deg); font-size: 0.8em;">SPECIAL ELEMENTS</div> |  |  |  |  |  |  |  |  |  |                                                                                             |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |  |  |  |  |  |  |  |  | <div style="border: 1px solid black; padding: 5px;">             ASM-A4 METALLURGICAL LITERATURE CLASSIFICATION           </div>                                                                                                                        |  |  |  |  |  |  |  |  |  | <div style="border: 1px solid black; padding: 5px;">             E-2           </div>       |  |  |  |  |  |  |  |  |  |
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| <div style="border: 1px solid black; padding: 5px;">             100000 00           </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  |  |  |  |  |  |  |  |  | <div style="border: 1px solid black; padding: 5px;">             100000 00           </div>                                                                                                                                                             |  |  |  |  |  |  |  |  |  | <div style="border: 1px solid black; padding: 5px;">             100000 00           </div> |  |  |  |  |  |  |  |  |  |

**Velocity of absorption of carbon dioxide by ammonia-salt solutions.** A. P. BELORUSKI, I. M. BOGUSLAVSKI, and V. V. URUSOV (J. Chem. Ind. Russ., 1937, 14, 1-9, 164-170).—The initial velocity of absorption,  $V$ , of  $\text{CO}_2$  by aq.  $\text{NH}_3\text{-NaCl}$  is equal to that by  $\text{NH}_3\text{-Na}_2\text{SO}_4$ , but is less for the latter solutions during the stage of pptn. of  $\text{NaHCO}_3$ .  $V$  is independent of the initial  $[\text{NH}_3]$ , and is  $\propto [\text{CO}_2]$  of the gas, for solutions of the same degree of carbonation; for a given  $[\text{HCO}_3^-]$  it is  $\propto [\text{NH}_3]$ .  $V$  falls rapidly during the initial stage, to a min. at the moment of saturation with  $\text{NaHCO}_3$ , after which  $V$  is  $\propto$  rate of crystallisation of  $\text{NaHCO}_3$ ; during this stage the optimum temp. is  $45^\circ$ , whilst after pptn. of most of the  $\text{NaHCO}_3$  it is  $30^\circ$ . R. T.

**APPROVED FOR RELEASE: 06/09/2000**

**CIA-RDP86-00513R000206010015-6"**



| COMMON ELEMENTS                                                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |  |  |  |  | COMMON VARIANTS              |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|------------------------------|--|--|--|--|--|--|--|--|--|
| MATERIALS INDEX                                                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |  |  |  |  | PROCESS AND PROPERTIES INDEX |  |  |  |  |  |  |  |  |  |
| <p>CA</p> <p>The work of coolers with successive and parallel en-<br/>closed bulbs in tower sulfuric acid production. F. A.<br/>Kerkovskii and L. M. Boguslavskii. <i>J. Chem. Ind.</i><br/>(U. S. S. R.) 10, No. 4-5, 23-7 (1959).—Details of the<br/>operation of the 2 types are given. The parallel bulbs<br/>are more efficient. W. M. Leicester</p> |  |  |  |  |  |  |  |  |  | 18                           |  |  |  |  |  |  |  |  |  |
| <p>ASR-5A METALLURGICAL LITERATURE CLASSIFICATION</p>                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |  | <p>6-27-59</p>               |  |  |  |  |  |  |  |  |  |
| <p>FROM SYNDICATE</p>                                                                                                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |  | <p>FROM COMPANY</p>          |  |  |  |  |  |  |  |  |  |
| <p>CLASSIFIED BY</p>                                                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |  |  |  |  | <p>CLASSIFIED BY</p>         |  |  |  |  |  |  |  |  |  |

| PROCEDURES AND PROPERTIES INDEX                                                                                                                                                                                                                                                                            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| <p>2A</p> <p>Fertilizer. I. M. Boguslavskii and P. F. Zamyatina. Russ. 57,645, Aug. 31, 1940. In the treatment of <math>H_2PO_4</math> with <math>Ca(OH)_2</math> the yield of citrate-sol. phosphate is increased by addn. of ferrous salt to the <math>H_2PO_4</math> before the reaction.</p> <p>15</p> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>                                                                                                                                                                                                                                                     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

| 1ST AND 2ND COLUMNS |                 | PROCESSES AND PROPERTIES INDEX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | 3RD AND 4TH COLUMNS |  |
|---------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------|--|
| C                   | COMMON ELEMENTS | <p>Preparation of soda-sulfate melt and its use in glass-melting. I. M. BOGUSLAVSKI, V. V. POLYAK, G. M. NIKOLAYEV, AND S. YA. RAP. Abstracted in <i>Sokol'skiye i Krim. Press</i>, 1948, No. 4-6, p. 30.—It was proposed to use in glassmelting a modified Leblanc melt comprising a mixture of soda and sulfate which was obtained by the incomplete reduction of the sulfate to the sulfide and the carbonization of the latter by the decomposition of the added <math>\text{CaCO}_3</math>. In contrast to the Leblanc melt, the modified melt was to have <math>\text{Na}_2\text{O}</math> and <math>\text{CaO}</math> in the proportions in which they are used in normal Fourcault charges, and the ratio of soda to sulfate was to be 1:1. The melt was selected on the basis of a glass composition of <math>84\text{O}_2</math>, 73, <math>\text{CaO}</math> 12, and <math>\text{Na}_2\text{O}</math> 18%, in which <math>\text{Na}_2\text{O}/\text{CaO} = 1.25</math>. The glass melt obtained did not differ in coloration from that obtained from a sulfate charge. The absolute content of the sulfides that will produce a colorless glass melt can vary within large limits and does not by itself cause the coloration. The glass becomes colored only when the relation between the sulfides and the free undecomposed sulfates is shifted to give an excess of sulfides not oxidized by the sulfate. The coefficient of reduction of the sulfate should not exceed about 80 to 82%. A homogeneous and uncolored glass is formed from charges containing this melt at <math>1300^\circ</math>, which is a lower temperature than that for soda-sulfate and soda charges. The transmissivity is lowered by increasing the content of Fe oxides, but with the correct ratio of sulfides and sulfate in the melt this will not be the cause of the sulfide coloration. H. Z. K.</p> |  |                     |  |
|                     |                 | <p>ASS. SLA METALLURGICAL LITERATURE CLASSIFICATION</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                     |  |
| MATERIALS INDEX     |                 | <p>GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                     |  |



BOGUSLAVSKIY, I.M.; VOL'FKOVICH, S.I.; BOGDANOVA, N.S.

- . Production of hydrogen fluoride from silicon tetrafluoride.  
Main. prom. no.7:450-452 J1 '61. (MIRA 14:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut udebreniy i  
insektitsidov.

(Hydrofluoric acid)

(Silicon fluoride)

*BOGUSLAVSKIY, I.M.*

ALIMOV, I.S., inzhener; BOGUSLAVSKIY, I.M., inzhener; ZHIRYAKOV, N.I.,  
inzhener; FEYGIN, V.I., inzhener.

Equipment for preventing overheating. Priborostroenie no.7:28-30  
Jl '57. (MLRA 10:9)  
(Thermostat)

BOGUSLAVSKIY, I.P. (s.Mirafa Khar'kovs'oy obl.)

Kharkov Province "Pedagogical lectures." Mat. v shkole no. 4:90  
J1-Ag '58. (MIRA 11:7)  
(Kharkov Province--Mathematics)

BOGUSLAVSKIY, I.Ya., starshiy nauchnyy sotrudnik,; BOCHAROV, Yu. G.,  
mladshiy nauchnyy sotrudnik,; YENTOV, O.I., mladshiy nauchnyy  
sotrudnik,; ZHIVAGO, V.I., mladshiy nauchnyy sotrudnik,;  
KHITSUN, V.N., inzh.; BUBLIK, V.I., inzh.; LEVCHENKO, D.V., otv. red.;  
AVRUTSKAYA, R.F., red. izd-va,; MIKHAYLOVA, V.V., tekhn. red.;  
EVENSON, I.M., tekhn. red.

[Consolidated time norms for machining standard parts; unit and  
small-scale production] Ukpupennyye normy vremeni na tokarnuyu  
obrabotku tipovykh detalей; individual'noe i melkoseriynoe  
proizvodstvo. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi  
tsvetnoi metallurgii, 1958. 445 p. (MIRA 11:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii  
proizvodstva i truda chernoy metallurgii.  
(Turning--Production standards)  
(Time study)



BOGUSLAVSKIY, Isaak Yakovlevich; BOCHAROV, Yuriy Grigor'yevich; LEVCHENKO, Dmitriy Vasil'yevich; PORTNOY, Moisey Yevseyevich; MERKOV, S.M., red.; AVRUTSKAYA, R.F., red.izd-vs; ISLENT'YEVA, P.G., tekhn.red.

[Establishing norms and the work organization for the repair of metallurgical furnaces] Tekhnicheskoe normirovanie i organizatsiia truda na remontakh metallurgicheskikh pechei. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po cherno i tsvetnoi metallurgii, 1960. 316 p.

(MIRA 13:10)

(Metallurgical furnaces--Maintenance and repair)

BOGUSLAVSKIY, I.Ya., starshiy nauchnyy sotrudnik; BOCHAROV, Yu.G., mladshiy nauchnyy sotrudnik; YENTOV, O.I., mladshiy nauchnyy sotrudnik; BUBLIK, V.I., inzh.; GOLOVANOVA, I.N., inzh.; KHITSUN, V.N., inzh.; SEMENENKO, V.I., inzh.; SHMIDRIK, S.S., inzh.; LEVCHENKO, D.V., otv.red.; CHETIRKIN, M.I., red.; PINIGIN, I.I., red.izd-va; ISLENT'YEVA, P.G., tekhn.red.

[Enlarged machining and time norms for planing and slotting; piece and small lot production] Ukpupnennye normy i normativy vremeni na strogal'nye i dolbeznye raboty; individual'noe i melkoseriinoe proizvodstvo. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 408 p.

(MIRA 14:12)

1. Kharkov. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii proizvodstva i truda chernoy metallurgii.  
(Metal cutting)

BOGUSLAVSKIY, I.Ya., starshiy nauchnyy sotr.; BOCHAROV, Yu.G., mlad. nauchnyy sotr.; YENTOV, O.I., mlad. nauchnyy sotr.; BUBLIK, V.I., inzh.; GOLOVANOV, I.N., inzh.; KHITSUN, V.N., inzh.; SEMENENKO, V.I., inzh.; SHMEDRIK, S.S., inzh.; LEVCHENKO, D.V., otv. red.; BURSHTEYN, A.I., red. izd-va; ISLENT'YEVA, P.G., tekhn. red.

[Consolidated norms and time norms for boring work; piece and small lot production] Ukpupnennye normy i normativy vremeni na rastochnye raboty; individual'noe i mal'koseriinoe proizvodstvo. Moskva, Metallurgizdat, 1962. 407 p. (MIRA 15:3)

1. Kharkov. Vsesoyuznyy nauchno-issledovatel'skiy institut organizatsii proizvodstva i truda chernoy metallurgii.  
(Drilling and boring—Production standards)

BOGUSLAVSKIY, I.Ya.; FRADKOV, Ye.S.

Organization of the dispatcher service and operational accounting in  
a machine shop. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.1  
tekh.inform. no.12:65-69 '63. (MIRA 17:3)

KHUTORETSKIY, G.M., inzh.; BEGUSLAVSKIY, I.Z., inzh.

Magnetic design of the saturated teeth of a turbogenerator.  
Vest. elektrom. 32 no.5:41-43 My '61. (MIRA 15:5)  
(Turbogenerators)

KHUTORETSKIY, Garii Mikhaylovich, assistant; BOGUSLAVSKIY, Il'ya Zelikovich,  
starshiy inzhener

Additional losses in the hollow conductors of the stator windings  
of a turbogenerator. Izv. vys. uch. zav.; elektromekh. 5  
no.8:923-927 '62. (MIRA 15:8)

1. Leningradskiy politekhnicheskii institut (for Khutoratskiy).
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instituta elektromekhaniki pri zavode "Elektrosila" (for  
Boguslavskiy).

(Turbogenerators—Windings)

L 20775-55 AFWL/SSD/ASD(a)-5/BSD/AFMD(p)/AFETR/AFTC(b)/RAEM(d)/ERD(4r)

ACCESSION NR: AP5003791

S/0144/64/000/002/1066/1081

AUTHOR: Boguslavskiy, I. Z.; Goncharenko, R. B.; Dombrovskiy, V. V.; Kogar, V. V.; Sivkov, A. P.; Sibel'nikov, K. V.; Khutoretskiy, G. M.

TITLE: Use of electronic digital computer "Minak-I" for practical design of electrical machines

SOURCE: IVUZ. Elektromekhanika, no. 9, 1964, 1066-1081

TOPIC TAGS: computer calculation, electric equipment digital computer/Minak-1 computer

Abstract: The authors discuss the use of digital computers for the design of specialized machines which are produced in small numbers and which cannot be computed using standardized programs. The most difficult problems are encountered when designing machines utilizing new cooling systems and materials and machines operating at high specific loads. The article contains detailed discussion of five projects solved at the Laboratory for Numerical Calculation Devices of the Leningrad Affiliate of the All-Union Scientific-Research Institute of Electrical Machines during the 1962-1963 period: 1) the calculation of the starting characteristics of synchronous motors with large rotors; 2) the checked calculation of electrical circuitry of hydrogenerators; 3) the exact magnetic calculation of teeth

Orig. art. has: 7 figures, 19 formulas.

Card 1/2

L 20775-65

ACCESSION NR: AP5003791

of electric machines; 4) the calculation of transient processes in synchronous and asynchronous machines; and 5) the calculation of forced oscillations of turbogenerator rotors.

ASSOCIATION: none

SUBMITTED: 08May64

ENCL: 00

SUP CODE: DP, RF

NO REF SOV: 000

OTHER: 000

JPRS

Card 2/2



BOGUSLAVSKIY, I.Z., inzh.; KHUDYAKOVA, Z.M., inzh.

Consideration of steel magnetization characteristics  
in the calculation of turbogenerators using digital  
computers. Elektrotehnika 36 no.12:5-6 D '65.

(MIRA 19:1)

BOGUSLAVSKIY, L., kand. tekhn. nauk

Heating of an open motor-vehicle parking area. Avt. transp. 41  
no.3:31-32 Mr '63. (MIRA 16:4)

(Automobile parking)

BOGUSLAVSKIY, L.A.; VOLOSOV, S.S.

Increasing the sensitivity of the feed mechanism of a grinding machine by means of vibrations. Stan. i instr. 34 no.6:14-16  
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(Feed mechanisms) (Grinding machines)

BOGUSLAVSKIY, L.A.; VOLOSOV, S.S.

Errors in the median method of control and readjustment in  
centerless grinding of conic rollers. Izv. tekhn. no.10:  
13-16 0 '63. (MIRA 16:12)

VOLOSOV, S.S.; BOGUSLAVSKIY, L.A.

Automatic readjustment device for conic rollers. Izv. tekhn.  
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VENDROV, I.G.; BOGUSLAVSKIY, L.B.

Greater daring in the introduction of nonferrous and ferrous metal substitutes. Metallurg 9 no.7:38-39 J1 '64.

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1. Tsentral'naya nauchno-issledovatel'skaya laboratoriya  
Upravleniya mestnoy promyshlennosti Donetskogo soveta narodnogo  
khozyaystva.

KLIMENKO, F.D., inzh.; VANDROV, I.G., inzh.; BOGUSLAVSKIY, L.B., inzh.;  
LOBACHEV, V.A., inzh.

Means for raising labor productivity in the power engineering departments of metallurgical plants. Prom. enorg. 20 no.8:9-11 Ag '65.  
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KLIMENKO, F.D., inzh.; VENDROV, I.G., inzh.; BOGUSLAVSKIY, L.B., inzh.;  
LOBACHEV, V.A., inzh.

Means for increasing labor productivity in the power engineering  
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1. BOGUSLAVSKIY, L. D.
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4. Heating from Central Stations--Moscow
7. Measures for rendering the operation of heating systems more economics. Gor. khoz. Mosk. 23 no.8 1949.

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BOGUSLAVSKIY, L.D.

[Technical operation of heating and ventilating systems] Tekhnicheskaya  
ekspluatatsiya otopitel'nykh i ventilatsionnykh sistem. Moskva, Izd-vo  
Ministerstva kommunal'nogo khoziaistva RSFSR, 1951. 126 p. (MLRA 6:8)  
(Heating) (Ventilation)

BOGUSLAVSKIY, L. G.

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Stroitel'nyy institut Mossoveta

Dlitel'nye Eksploatatsionnye Ispytaniya Otopitel'noy

Page 45

Pechi s Vodyanym Teploakkumuliruyushchim Massivom

SO: Collection of Annotations of Scientific Research Work on Construction, completed

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Improving dual-control throttle valves. Trudy Stroi.inst. Mosgor-  
ispolkoma no.4:61-65 '53. (MIRA 8:3)  
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MIKHAYLOV, S.A.; BOGUSLAVSKIY, L.D., redaktor; IOSELEVICH, L.Ye.,  
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Graficheskiy raschet elementov sistem vodianogo otopeniya. Moskva,  
Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1954. 8 p.  
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[New developments in municipal engineering: heat supply, ventilation, dust elimination] Novosti tekhniki kommunal'nogo khoziaistva; teplo-snabzhenie; ventilatsiia, obespylivanie. Pod red. L.D.Boguslavskogo. Moskva, M-vo kommun.khoziaistva RSFSR, 1954. 136 p. (MLRA 7:11D)

**BOGUSLAVSKIY, Leontiy Davidovich; ZHURAVLEV, B.A., redaktor; RACHEVSKAYA, M.I., redaktor izdatel'stva; FOMBERG, P.I., tekhnicheskii redaktor.**

[Repair and operation of plumbing equipment in houses and public buildings] Remont i ekspluatatsiia sanitarno-tekhnicheskikh ustroistv zhilykh i obshchestvennykh zdani. Moskva, Izd-vo Ministerstva Kommunal'nogo khoziaistva RSFSR, 1956. 235 p. (MLRA 9:6)  
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[Organisation and planning of construction and assembly work in establishing heat and gas supply and ventilation] Organizatsiia i planirovanie stritel'no-montashnykh rabot po teplo-gasosnabzheniiu i ventilatsii. Pod red. D.L.Poliakova. Moskva, Gos. izd-vo lit-ry po stroit. i arkhitekture, 1956. 293 p. (MLRA 9:11)

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**BELINKII, Yevgeniy Aleksandrovich; BOGUSIANSKIY, I.D.,** redaktor;  
**RACHEVSKAYA, M.I.,** redaktor izdatel'stva; **KONYASHINA, A.D.,**  
tekhnicheskiiy redaktor

[Operation of water systems in central heating] **Eksploatatsionnyi**  
**rezhim vodianyykh sistem tsentral'nogo otopeniia.** Moskva, Izd-vo  
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(MLRA 10:1)

(Heating from central stations)

BOGUSLAVSKIY, Leontiy Davidovich; TURKUS, V.A., red.; UCHITEI', I.Z.,  
red.izd-va; SHLIKHT, A.A., tekhn.red.

[Operation and maintenance of heating and ventilating systems]  
Tekhnicheskaya ekspluatatsiya otopitel'nykh i ventilatsionnykh  
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Economizers for apartment-house boiler units operating on gas.  
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Cylindrical hoods for dual-control faucets. Zhil.-kom. khoz.  
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(Faucets)

BOGUSLAVSKIY, Leontiy Davidovich; VEKSLER, Z.Ya., red.; BOLOTINA, A.V.,  
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[Manual for an apartment house mechanic] Posobie dlia slesaria  
zhilogo doma. Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1960.  
72 p. (MIRA 14:4)  
(Apartment houses--Maintenance and repair)

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[Reference book for young sanitary technicians] Spravochnik  
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tekhizdat, 1960. 324 p. (MIRA 13:9)  
(Plumbing)

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[Heating systems with water distribution through large conduits]  
Sistemy otopeniia s kollektornym raspredeleniem body. Moskva,  
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(Hot-water heating)



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[Economics of heating and ventilation systems] Ekonomika sistem otopeniia i ventilatsii. Moskva, Izd-vo M-va kommun. khoz. RSFSR, 1962. 92 p. (MIRA 15:10)  
(Heating--Costs) (Ventilation--Costs)

BOGUSLAVSKIY, L.D., kand.tekhn.nauk

Economic efficiency of heating and ventilation systems. Vol.1  
san.tekh. no.10:1-6 0 '62. (MIRA 15:12)  
(Heating) (Ventilation)

BOGUSLAVSKIY, Leontiy Davidovich; KAZANSKIY, N.V., red.; ZAMYSHLYAYEVA, I.M., red.izd-va; MAYOROV, V.V., tekhn. red.

[Maintaining and repairing sanitary equipment in apartment houses and public buildings] Eksploatatsiia i remont sanitarno-tekhnicheskikh ustroistv zhilykh i obshchestvennykh zdani. Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1963. 216 p.

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BOGUSLAVSKIY, Leontiy Davidovich; FOMICHEV, B.I., red.

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(MIRA 18:3)

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Economic efficiency of the intermittent heating of industrial buildings. Vod. i san. tekhn. no.2:23-25 F '65.  
(MIRA 18:4)

BOGUSLAVSKIY, L.G.

Rare case of self-strangulation by a noose. Sud.-med.ekspert. 5  
no.4:50-51 O-D '62. (MIRA 15:11)

1. Khersonskoye oblastnoye byuro sudebnomeditsinskoy ekspertizy  
(nachal'nik L.G.Boguslavskiy).  
(SUICIDE) (DEATH—CAUSES)

BOGUSLAVSKIY, M., kand.yuridicheskikh nauk

• Companions and friends. Izobr. i rats. no.1:36-37 Ja '62.  
(MIRA 14:12)  
(Technological innovations)



BOGUSLAVSKIY, M.A., dotsent, kand. voyennykh nauk, podpolkovnik; CHEREPANOV,  
L.M., podpolkovnik

Estimating the tactical radius of airplanes during flight with a  
varying profile and conditions. Mor. sbor. 48 no.11:51-53 N '64.  
(MIRA 18:1)

BOGUSLAVSKIY, L.I.

121-8-18/22

AUTHOR  
TITLE

SHKOENIKOV, M.Kh., BOGUSLAVSKIY, L.I.

The Finishing of Surfaces

(Chistovaya obrabotka ploskostey. Russian)

Stanki i Instrument, 1957, Vol 28, Nr 8, pp 39 -- 40 (U.S.S.R.)

PERIODICAL

ABSTRACT

The treatment of the heating plates of plate presses represents a difficult problem as their length and width measure up to 3,200 mm; deviation from the plane and parallel character should not exceed 0,15 and 0,1 over a total length of 1,000 mm and their clean finishing must correspond to the 6th standard (see picture 1). For this operation a parallel-planing machine was rebuilt by mounting a cutterhead instead of a blade-holder on one of the supports. Its operating speed was reduced by means of connecting an additional resistance in the operating winding of the electric motor (from 6 m/min. down to 0,32 m/min.). As a standard cutterhead proved to be too weak a special cutterhead was produced (ill. 2) which is described in detail. The operating indices are given in a table. A vertical lathe was prepared for the treatment of the heating plates of a width of 3.200 mm (ill. 3) and it was supplied with a grinder head. Before grinding the plates are once or twice rough-turned. Grinding is then carried out in 5 - 8 stages until it complies with the standards 7 - 9, which is more than what is required. Grinding is carried out with ample emulsion cooling.

Card 1/2

121-8-18/22

The Finishing of Surfaces

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*BOGUSLAVSKIY, L.I.*

BOGUSLAVSKIY, L.I., inzh.

Burning through crosspieces of heating plates used in multiple-stage  
presses. Mashinostroitel' no.1:26-27 Ja '58. (MIRA 11:1)  
(Power presses) (Metal cutting, Electric)